

Amendments to the Claims

Without prejudice or disclaimer, please amend claims 1-4, 6, and 15 to read as shown below:

1. (Currently Amended) An apparatus for a reciprocating screw injection molding machinery having a barrel and a screw which rotates in the barrel comprising:

a check valve having means ~~to~~ for selectively ~~switch to a first mode which allows~~ locking the check valve in an open position in response to axial motion along the barrel to allow bi-directional flow of material along the screw.

2. (Currently Amended) The apparatus according to claim 1 ~~further comprising~~ wherein the means for selectively locking the check valve in the open position in response to axial motion along the barrel comprises:

~~means for switching the check valve between the first mode and a second mode which prevents bi directional flow of material along the screw~~ responsive to axial motion of the check valve.

3. (Currently Amended) The apparatus according to claim 1 ~~further comprising~~ wherein the means for selectively locking the check valve in the open position in response to axial motion along the barrel comprises:

~~means for switching the check valve between the first and second modes by~~ means responsive to axial motion of the screw.

4. (Currently Amended) The apparatus according to claim 1 further comprising:

means for ~~switching the check valve between the first and second modes by~~ selectively unlocking the check valve from the open position in response to rotational motion of the screw.

5. (Original) The apparatus according to claim 1 further comprising:

means for at least partially blocking the egress of the material from the barrel.

6. (Currently Amended) The apparatus according to claim 1 ~~wherein the material comprises~~ further comprising:

a quantity of material in the barrel wherein the material comprises a cleaning compound.

7. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises an abrasive.

8. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises a detergent.

9. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises materials which cause the cleaning compound to have a rheopectic flow behavior.

10. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises materials which cause the viscosity of the cleaning compound to decrease during agitation.

11. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises materials which release carbon dioxide when heated or agitated.

12. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises materials which release water when heated or agitated.

13. (Original) The apparatus according to claim 6 wherein the cleaning compound comprises particles for polishing the barrel and the screw.

14. (Original) The apparatus according to claim 1 further comprising:

means for attaching the check valve to the screw.

15. (Currently amended) The apparatus of claim 1 wherein the check valve comprises:

a body having a protrusion;

a sliding ring having a slot; and

a valve seat;

such that the ~~first mode~~ check valve locked in the open position occurs when comprises the protrusion moves into located in a bottom of the slot.

16. (Original) The apparatus according to claim 1 wherein the check valve is selected from the group consisting of: a ring-type check valve, a poppet-type check valve, and a ball-type check valve.

17. (Withdrawn) A method of allowing bi-directional flow in reciprocating screw injection molding machines having a barrel and screw which rotates in the barrel comprising the steps of:

moving the screw in a rotational direction to allow material to flow in a first axial direction;

moving the screw in a second axial direction to lock a check valve;

moving the screw in the first axial direction to cause the material to flow in the second axial direction; and

moving the screw in the rotational direction to unlock the check valve and allow material to flow in the first axial direction.

18. (Withdrawn) The method according to claim 16 wherein the second, third, and fourth moving steps are repeated a plurality of times.

19. (Withdrawn) A method of cleaning reciprocating screw injection molding machines having a barrel and screw which rotates in the barrel comprising the steps of:

displacing residual melt in screw flights of the screw with a cleaning compound;

accumulating a quantity of the cleaning compound ahead of the screw;

blocking an exit for the cleaning compound from the barrel;

moving the screw in a forward axial motion to cause the cleaning compound to travel back into the screw flights;

at least partially opening the exit; and

expelling the cleaning compound.

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20. (Withdrawn) The method of claim 18 further comprising, after the moving step, the step of:
accumulating a quantity of the cleaning compound ahead of the screw.

21. (Withdrawn) The method of claim 19 wherein the moving and second accumulating steps are repeated a plurality of times.